

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 10/732,850
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Applicant: Green et al.
Group Art Unit: 1796
Examiner: Patrick D. Niland
Title: USE OF UREA CRYSTALS FOR NON-POLYMERIC
COATINGS
Attorney Docket: IN-5587
HDP Docket No. 0906S-000337

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
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Reply Brief Under 37 C.F.R. § 41.41

Sir:

In response to the Examiner's Answer having a notification date of December 16, 2009, Appellants file this Reply Brief. Appellants respond to the three arguments raised by the Examiner on pages 14-22, pages 22-24, and pages 24-27.

Argument

1. Response to Examiner's Answer – page 14, line 10 to page 22, line 14.

monomer \neq polymer

The Examiner insists on a definition that renders the claim terms monomer, oligomer, and polymer meaningless. The Examiner cites “Reactive Polymers Fundamentals and Applications A Concise Guide to Industrial Polymers,” page 82, for the definition of “macromonomer” as “a polymer that contains reactive groups.” However, by this definition, the term “macromonomer” is expressly a polymer, and as such the reference recognizes that macromonomers belong to the polymer class of materials, albeit put to a specialized use. It is not a “macromonomer” until used in a polymerization reaction.

As the claimed monomeric material is not a polymer, the present claims are not anticipated by Boisseau. The present claims separately recite monomeric, oligomeric, and polymeric materials, meaning these are separate and distinct features. In contrast, the film-forming component in the Boisseau document is either a polymer or oligomer that is formed from monomers. The present specification supports the distinct uses of these terms as understood in the art to refer to distinct materials. Accordingly, the concern of the Board of Appeals in the Decision dated July 18, 2008 and the concern of the Examiner with respect to the breadth of “monomeric material” is appropriately addressed.

The Examiner's Answer would have the Board believe that the claimed monomeric material can be a polymeric material. The Examiner implicitly concedes that his basis for drawing this conclusion is not found in Appellants' specification or the cited Boisseau document.

Instead, he provides an unrelated document as the supposed nexus to tie the claimed monomeric material to the polymeric material of Boisseau, assuming that the polymeric material of Boisseau (which is expressly formed from monomers therein) is actually a “macromonomer” that can allegedly be viewed as the presently claimed monomeric material by one of skill in the art, even though he makes no attempt to square his assumption with the present specification.

There is no confusion in the present claims, the specification, or the Boisseau document with respect to the terms monomer and polymer. Never are they used in a manner that would include one another. Boisseau expressly discloses that the oligomeric and polymeric materials provided therein are polymerized from monomers. And there is no reasonable way for a skilled artisan to read a monomer as being a polymer based on the present specification.

Notably, the Examiner’s proffered term of “macromonomer” is found nowhere in the present claims, the specification, and the Boisseau document. It is unreasonable to import alternative meanings for a claim feature when there is no ambiguity. The only ambiguity in the present case is wholly manufactured by the Examiner by selective application of the definition of “macromonomer,” cited from a reference independent of the art in question, to contort terms as used in the claims, specification, and Boisseau. Appellants have demonstrated in the Appeal Brief how use of the terms monomer and polymer in the claims, specification, and Boisseau is congruent and how their use is also commensurate with their definitions as generally understood in the art. In the face of this, the Examiner clings to the remote definition of macromonomer – a term not found in Appellant’s claims or Boisseau – which is inapplicable to the context of “monomer” as used in the claims, the specification, and in the Boisseau document, and instead sets out an unreasonable assertion somehow equating a polymer to a monomer. But the art recognizes that a “macromonomer” is not a monomer at all, but a polymer. A person of ordinary

skill in the art would never equate a polymer to a monomer absent some extraordinary supporting context. In this case, there is no supporting context – the rejection relies solely on the manufactured definition.

For the sake of argument, even if someone unfamiliar with the chemical arts makes the conjecture that terms “polymer” and “monomer” in a claim would somehow allow for an instance where the “polymer” is a “monomer,” based on the Examiner’s proffered definition of “macromonomer,” such a view is at odds with the evidence at hand. If extrinsic reference sources, such as dictionaries, evidence more than one definition for the term, the intrinsic record must be consulted to identify which of the different possible definitions is most consistent with Appellants’ use of the terms. And where there are several common meanings for a claim term, Appellants’ disclosure serves to point away from the improper meanings and toward the proper meanings. In this case, the most relevant disclosure is Appellants’ specification, which distinguishes a polymer from a monomer, and the second most relevant disclosure is the Boisseau document, which also distinguishes a polymer from a monomer. This leaves the Examiner’s cited definition for a term not used in either the claims or specification, and which is inconsistent with the sources that matter.

The Examiner’s Answer makes much of section [0020] (pages 9-10) of the present specification as an apparent linchpin for imputing the definition of “macromonomer” onto the presently claimed monomeric material. The Examiner’s theory appears to be that the presently claimed monomeric material can be an oligomer based on the single sentence at page 10, lines 4-5, taken out of context. As illustrated in the Appeal Brief, “oligomer products” in the subject sentence is not referring to oligomers of the claimed monomeric material, it is referring to the preceding sentence describing that “[t]he unsaturated fatty acids may be dimerized, trimerized, or

tetramerized.” See Appeal Brief page 16, line 17 to page 19, line 6. Accordingly, the manner in which the Examiner is interpreting the quoted passage is not in agreement with the immediately preceding sentence, is not in agreement with the remainder of the paragraph, and is not in agreement with the specification properly viewed as a whole. Individual fatty acids cannot constitute the presently claimed monomeric material having a plurality of active hydrogen groups (i.e., *multiple* active hydrogen groups), and addition reaction thereof does not result in an “oligomer” of the presently claimed monomeric material. A single fatty acid has one active hydrogen, not a plurality as required by the claimed monomer. The claimed monomeric material having a plurality of active hydrogen groups is formed after reaction of the fatty acids

Just as *In re Buszard* demonstrates that flexible foam does not equate to rigid foam, the presently claimed monomeric material does not equate to a polymeric material. See Appeal Brief page 15, line 17 to page 16, line 14. Regardless of the definition of “macromonomer” (defined as a polymer that contains reactive groups), Boisseau distinguishes between monomers and polymers in the same manner as the present application. There is no basis therefore to make “macromonomer” (and the polymer of Boisseau) equate to a “monomer” simply due to the root of the word “macromonomer.” This is especially true in view of the present claims that simultaneously include and separately recite “monomeric material” and “polymeric or oligomeric material.” One cannot infer the monomeric material to be a polymeric material, just as flexible foam is not rigid foam. The Examiner’s claim interpretation does not constitute the broadest reasonable interpretation for these claims in view of the specification. Furthermore, if the claimed “monomeric material” can somehow be a polymer, then what is left to be the claimed “polymeric or oligomeric material?”

The present claims are therefore novel as Boisseau's coating having a (polymeric or oligomeric) film-forming component (a) and a rheology control agent (b) does not provide all the features of independent claims 1, 13, and 16. Namely, Boisseau lacks "at least one monomeric material having a plurality of active hydrogen groups . . . and optionally a polymeric or oligomeric material."

Accordingly, the 35 U.S.C. § 102 rejection based on Boisseau with "Reactive Polymers Fundamentals and Application A Concise Guide to Industrial Polymers," page 82 being cited as evidence should be REVERSED.

2. Response to Examiner's Answer – page 22, line 16 to page 24, line 16.

As already described, the Boisseau document fails to teach a coating composition having at least one monomeric material that has a plurality of active hydrogen groups. Addition of the Green and Ohrbom documents fails to cure this deficiency. Since the combination must teach all of the claim features and provide an apparent reason to select and combine the necessary claim features, including claim features missing from the cited documents, the present claims are not obvious in view of the documents. If anything, disclosure of the polymers and oligomers of Boisseau would actually lead a skilled artisan away from using a monomeric material as presently claimed.

With respect to Green, the document discloses a curable coating composition having a polymer resin, curing agent, and a compound (c) having at least one carbamate group. In contrast, the present invention describes a monomeric material having a "plurality of active

hydrogen groups,” which can be carbamate groups. A “plurality of active hydrogen groups” in the present invention requires at least two such groups. The difference between having one carbamate group and two carbamate groups is important in the curing of a coating composition. For example, all three of the cited documents (Boisseau, Green, and Ohrbom) contain other polymeric resins that react with a crosslinker to form a polymerized cured coating. In contrast, the present invention does not require a polymeric resin that reacts with a crosslinker.

The carbamate compound (c) from Green is further differentiated from the monomeric material of the present invention in that, because compound (c) can have just one carbamate group, it would then react with a crosslinker at only the single carbamate moiety. As such, the cured coating composition in Green would be very different from the cured coating composition of the present invention where the coating composition including the monomeric material with a plurality (*i.e.*, at least 2) of active hydrogen groups reacts with a crosslinker.

Thus, the present invention identifies and utilizes a specific species of carbamate containing compounds (*e.g.*, monomeric materials having at least two carbamates). A monomeric material having a single carbamate group would not function in a similar fashion and is not included in the presently claimed invention. Therefore, the monomeric material having a plurality of active hydrogen groups would not have been obvious in the combination of the aforementioned documents, since each of the documents contains a separate polymeric resin which can react with a crosslinker to provide a polymerized and cured coating. Addition of a single carbamate containing compound (c) from the Green document can react with a crosslinker, but cannot participate in the same type of curing reaction as can the monomeric material having a plurality of active hydrogen groups of the present invention.

No apparent reason or basis is identified in the rejection as to why a skilled artisan would use a monomeric material with a plurality (at least two) of reactive hydrogen groups in a coating composition based on the cited documents. The present claims are consequently not obvious.

Accordingly, the 35 U.S.C. § 103(a) rejection based on Boisseau, Green, and Ohrbom with “Reactive Polymers Fundamentals and Applications A Concise Guide to Industrial Polymers”, page 82 cited as evidence should be REVERSED.

3. Response to Examiner’s Answer – page 24, line 18 to page 27, line 19.

The present claims are patentable over Ohrbom ‘253 and Boisseau as Appellants’ claims expressly require “a crystalline reaction product of an amine and an isocyanate,” whereas the reactive component of Ohrbom ‘253 expressly does not contain a crystalline solid, teaching away from Appellants’ composition. *Cf.* the crystalline sag control agent or rheology modifier formed by reaction of an amine and an isocyanate (specification page 11, line 18 to page 13, line 17) and the reactive component of Ohrbom ‘253 (Ohrbom ‘253 abstract; and paragraphs [0013]-[0014], and [0017]). Any attempted combination of Ohrbom ‘253 with Boisseau by a person of ordinary skill in the art would therefore avoid including crystalline materials as part of the coating composition, as mandated by Ohrbom ‘253. And there is no basis provided in these documents or the general knowledge in the art for a skilled artisan to contravene the teachings of Ohrbom to include a crystalline material.

The Examiner notes that Boisseau discloses the use of crystalline sag control agents in paragraphs [0009], [0011], [0012], and [0013]. However, the Examiner errs in trying to equate these sag control agents to the undefined materials disclosed in paragraph [0139] of Ohrbom

'253, namely the undefined "other materials of kind that the art normally includes in such coatings." Examiner's Answer page 25, lines 5-6 quoting Ohrbom '253 paragraph [0139]. Inclusion of these "other materials" does not provide license to contravene the express disclosure of using a reactive component that is not a crystalline solid.

The rejection must substantiate how using "other materials of kind that the art normally includes in such coatings" would persuade a skilled artisan to disregard the express teachings of Ohrbom '253 to not use a crystalline solid. Aspects of the properties and/or benefits provided by the Ohrbom '253 disclosure would likely be lost if a crystalline material is employed. As such, a person of ordinary skill would be led away from recreating Appellants' claims based on the Ohrbom '253 disclosure and would not combine features of Ohrbom '253 and Boisseau in a manner that would result in the present claims.

There is no apparent reason found in the cited references or based on the general knowledge in the art that would lead a skilled artisan to predict that using a crystalline material (from Boisseau) in a composition according Ohrbom '253 would be successful. The combined documents therefore cannot establish a case of obviousness.

Accordingly, the 35 U.S.C. § 103(a) rejection based on Ohrbom '253 and Boisseau should be REVERSED.

4. Conclusion

The present claims are patentable over the cited art. Appellants, therefore, respectfully petition this Honorable Board to reverse the final rejection of the claims on each ground and to indicate that all claims are allowable.

Respectfully submitted,

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